



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,261	06/16/2006	Arne Simonsson	4147-173	9086
23117	7590	06/18/2009	EXAMINER	
NIXON & VANDERHYE, PC			BALAOING, ARIEL A	
901 NORTH GLEBE ROAD, 11TH FLOOR			ART UNIT	PAPER NUMBER
ARLINGTON, VA 22203			2617	
MAIL DATE		DELIVERY MODE		
06/18/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,261	<b>Applicant(s)</b> SIMONSSON ET AL.
	<b>Examiner</b> ARIEL BALAOING	<b>Art Unit</b> 2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 03 April 2009.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 36-53 and 55-71 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 36-53 and 55-71 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 16 July 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/06)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/03/2009 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 36-45, 48-53, 55-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over VADGAMA (US 2003/0083069) in view of AMERGA et al (US 2004/0043798).

Regarding claim 36, VADGAMA discloses a method of selecting an access network from among access networks capable of providing service to a mobile communication station (abstract; periodic cell selection), the method comprising: determining for each of a plurality of access selections a radio quality [signal quality] from the terminal to each access network, determining, for each access selection and

for each access network, a utilization factor [**congestion/load**] for at least one node [**base station/cell**], determining, for each access selection and for each access network, a user perceived data quality [**threshold/selection**], based on said determined utilization factor and said determined radio quality for the access network, and selecting at least one of said access networks, based on the determined user perceived quality (paragraph 16-20, 24-29, 48-52, 83, 87-92; base station selection based on measured congestion and signal quality). However, VADGAMA does not expressly disclose wherein the determining of access selection is in said terminal and wherein each of a plurality of available access selections include access selections to differing ones of the multiple access network. In a similar field of endeavor, AMERGA discloses a method of selecting an access network from among multiple access networks capable of providing service to a mobile communication terminal (abstract), the method comprising: determining, in said terminal, for each of a plurality of available access selections including access selections to differing ones of the multiple access networks, a radio quality from the terminal to the respective access network (Figure 5; paragraph 31, 34, 35; Inter and intra-RAT networks are scanned. RSSI values are measured for each access cell); determining, in said terminal, factors for at least one node (access networks, a radio quality from the terminal to the respective access network (Figure 5; paragraph 31, 34, 35; mobile terminal monitors cells and measures energy of each); and selecting, in said terminal, at least one of said multiple access network (access networks, a radio quality from the terminal to the respective access network (Figure 5; paragraph 31, 34, 35; reacquisition/reselection of inter-frequency and inter-rat cells).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify VADGAMA to include the teachings of AMERGA, since AMERGA states that such a modification would allow monitoring of all available system while minimizing power consumption within the mobile terminal (see paragraph 28).

Regarding claim 37, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses further comprising, estimating a radio link bitrate  $\mu_u$  for each access, based on the determined radio quality  $q$ , and determining the user perceived data quality, based on the determined utilization factor and the estimated radio link bitrate (paragraph 21, 87-91, 104; bit error rate or bit rate, signal to interference ratio).

Regarding claim 38, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses further comprising estimating the radio link bitrate according to:  $\mu_u = g(q)$  where  $g$  is an access specific function (paragraph 21, 87-91, 104; bit error rate or bit rate and signal to interference ratio is calculated as a specific function).

Regarding claim 39, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein the radio link quality  $q$  is represented by at least any one of pilot signal strength, beacon signal strength,  $E_c/N_0$ , SIR, C/I, bit error rate, block error rate, and packet error rate (paragraph 21, 104).

Regarding claim 40, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose determining the user perceived quality  $Q_{.sub.u}$  according to:  $Q_{.sub.u} = .mu.^*f(.rho.)$  where  $.mu.$  represents the radio link bitrate, and  $.rho.$  represents the utilization factor for the access. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 41, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose determining the user perceived quality according to:  $Q_{.sub.u} = .mu.^*(1-.rho.)$  where  $.mu.$  represents the radio link bitrate, and  $.rho.$  represents the utilization factor for the access. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 42, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein  $.mu.$  is constant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use

this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 43, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein *.rho.* is constant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 44, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein a function is specific for each type of access network (paragraph 7, 8, 26).

Regarding claim 45, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses further comprising representing said user perceived quality with a data bit rate for the access network (paragraph 21, 87-91, 104; bit error rate or bit rate, signal to interference ratio).

Regarding claim 48, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein *.rho.* is estimated by the expression:  $.rho. = 1 - P_{CCH} P_{TOT}$ , where  $P_{sub.CHH}$  is the common power, and  $P_{sub.TOT}$  is the total power. It would have been obvious to one having ordinary skill in the art at the

time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 49, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein P.sub.CHH is estimated from the received pilot power and a factor F.sub.CCH that compensates for the other common channels, and P.sub.TOT is estimated from the received wideband signal strength. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 50, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses determining the utilization by measuring at least a received pilot power and a total power from a received wideband signal strength, whereby the utilization is estimated (paragraph 21, 23, 24).

Regarding claim 51, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses further comprising selecting the at least one access network before the terminal is connected to an access network (paragraph 16-20, 24-26, 29, 48-52, 83, 87-92).

Regarding claim 52, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of VADGAMA and AMERGA further discloses wherein said multiple access networks utilize the same type of radio access technology (VADGAMA - Figure 1, 2; paragraph 71, 72; AMERGA – paragraph 31, 34, 35).

Regarding claim 53, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of VADGAMA and AMERGA discloses wherein access networks utilize different types of radio access technologies (abstract; paragraph 6-8, 10; inter-rat cell selection).

Regarding claim 55, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of VADGAMA and AMERGA discloses wherein access networks belong to different networks (abstract; paragraph 6-8, 10; inter-rat cell selection).

Regarding claim 56, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of VADGAMA and AMERGA further discloses wherein said multiple access network belong to the same operator (VADGAMA Figure 1, 2; paragraph 71, 72; operator is seen as the same network; AMERGA – paragraph 31, 34, 35).

Regarding claim 57, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of VADGAMA and AMERGA discloses wherein access networks belong to different operators (abstract; paragraph 6-8, 10; inter-rat cell selection).

Regarding claim 58, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein the multiple access networks include at least one of WCDMA, CDMA2000, GSM, WLAN or GPRS (paragraph 71-73, 167).

Regarding claim 59, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein said node comprises at least one of an access point, and base station (paragraph 16-20, 24-26, 29, 48-52, 83, 87-92).

Regarding claim 60, VADGAMA discloses a system enabling selection of an access network from among access networks capable of providing service to a mobile communication station [**mobile unit**], comprising: means for determining for each of a plurality of available access selections a radio quality [**signal quality**] from the terminal to each access network, means for determining, for each access selection and for each access network, a utilization factor [**congestion/load**] for at least one access point [**base station/cell**], means for determining, for each access selection and for each access network, a user perceived data quality [**threshold/selection**], based on said determined utilization factor and said determined radio quality for the access network, and means for selecting at least one of said access networks, based on the determined user perceived quality (paragraph 16-20, 24-26, 29, 48-52, 83, 87-92; base station selection based on measured congestion and signal quality). However, VADGAMA does not expressly disclose wherein each of a plurality of available access selections include access selections to differing ones of the multiple access networks a radio

quality from the terminal to the respective access network. In the same field of endeavor, AMERGA discloses wherein each of a plurality of available access selections include access selections to differing ones of multiple access networks a radio quality from the terminal to the respective access network (Figure 5; paragraph 31, 34, 35; reacquisition/reselection of inter-frequency and inter-rat cells). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify VADGAMA to include the teachings of AMERGA, since AMERGA states that such a modification would allow monitoring of all available system while minimizing power consumption within the mobile terminal (see paragraph 28).

Regarding claim 61, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein said determining means further comprise means configured to estimate a radio link bitrate  $\mu$  for each access, based on the determined radio quality  $q$ , and said determining means are further configured to determine the user perceived data quality, based on the determined utilization factor and the estimated radio link bitrate (paragraph 21, 87-91, 104; bit error rate or bit rate, signal to interference ratio).

Regarding claim 62, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein said estimating means are configured to estimate the radio link bitrate according to:  $\mu = g(q)$  where  $g$  is an access specific function (paragraph 21, 87-91, 104; bit error rate or bit rate and signal to interference ratio is calculated as a specific function).

Regarding claim 63, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein said user perceived data quality determining means (14) are configured to determine the user perceived quality according to:.mu.\*f(.rho.) It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 64, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose said user perceived data quality determining means are configured to determine the user perceived quality according to:.mu.\*(1-.rho.) It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 65, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein said utilization determining means are configured to estimate .rho. according to: .rho. = 1 - P CCH P TOT ,where P.sub.CHH is the common power, and P.sub.TOT is the total power. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this

equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 66, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein P.sub.CHH is estimated from the received pilot power and a factor F.sub.CCH that compensates for the other common channels, and P.sub.TOT is estimated from the received wideband signal strength. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this equation and variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 67, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. the combination of VADGAMA and AMERGA further discloses wherein the utilization is determined by measuring at least a received pilot power and a total power from a received wideband signal strength, whereby the utilization is estimated (paragraph 21, 23, 24).

Regarding claim 68, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein said radio quality determining means are further configured to estimate .mu. based on at least one of pilot signal strength, beacon signal strength, Eb/N0, SIR, and C/I (paragraph 21, 104).

Regarding claim 69, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. VADGAMA further discloses wherein said node comprises at least one of an access point, and base station (paragraph 16-20, 24-26, 29, 48-52, 83, 87-92).

Regarding claim 70, VADGAMA discloses A mobile communication station [mobile station] capable of receiving service from access networks, comprising: means for determining for each access selection a radio quality [signal quality] from the terminal to each access network, means for determining, for each access selection and for each access network a utilization factor [congestion/load] for at least one node, means for determining for each of a plurality of available access selections for each access selection and for each access network, a user perceived data quality [threshold/selection], based on a utilization factor for the access network, and means for selecting at least one of said access networks, based on the determined user perceived quality and the radio quality (paragraph 16-20, 24-26, 29, 48-52, 83, 87-92; base station selection based on measured congestion and signal quality). However, VADGAMA does not expressly disclose wherein each of a plurality of available access selections include access selections to differing ones of the multiple access networks a radio quality from the terminal to the respective access network. In the same field of endeavor, AMERGA discloses wherein each of a plurality of available access selections include access selections to differing ones of multiple access networks a radio quality from the terminal to the respective access network (Figure 5; paragraph 31, 34, 35; reacquisition/reselection of inter-frequency and inter-rat cells). Therefore it would have

been obvious to a person of ordinary skill in the art at the time the invention was made to modify VADGAMA to include the teachings of AMERGA, since AMERGA states that such a modification would allow monitoring of all available system while minimizing power consumption within the mobile terminal (see paragraph 28).

Regarding claim 71, VADGAMA discloses a system enabling selection of an access network from among one or more access networks capable of providing service to a mobile communication station [**mobile unit**], comprising: a first unit configured to determine for each of a plurality of available access selection a radio quality [**signal quality**] from the terminal to each access network, a second unit configured to determine, for each access selection and for each access network, a utilization factor [**congestion/load**] for at least one access point [**base station/cell**], a third unit configured to determine, for each access selection and for each access network, a user perceived data quality [**threshold/selection**], based on said determined utilization factor and said determined radio quality for the access network, and a selector unit configured to select at least one of said access networks, based on the determined user perceived quality (paragraph 16-20, 24-26, 29, 48-52, 83, 87-92; base station selection based on measured congestion and signal quality. Each unit is considered various components including processor and transceiver of mobile device). However, VADGAMA does not expressly disclose wherein each of a plurality of available access selections include access selections to differing ones of the multiple access networks a radio quality from the terminal to the respective access network. In the same field of endeavor, AMERGA discloses wherein each of a plurality of available access selections

include access selections to differing ones of multiple access networks a radio quality from the terminal to the respective access network (Figure 5; paragraph 31, 34, 35; reacquisition/reselection of inter-frequency and inter-rat cells). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify VADGAMA to include the teachings of AMERGA, since AMERGA states that such a modification would allow monitoring of all available system while minimizing power consumption within the mobile terminal (see paragraph 28).

5. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over VADGAMA (US 2003/0083069) in view of AMERGA et al (US 2004/0043798) and further in view of TENNISON et al (US 2002/0046292).

Regarding claim 46, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose further comprising representing said user perceived quality with an active session data throughput for the access network. In a similar field of endeavor, TENNISON discloses representing a user perceived quality with an active session data throughput for an access network (paragraph 19). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of VADGAMA and AMERGA to include the teachings of TENNISON, since such a modification could be used to determine a network selection based on specified and configurable rules.

6. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over VADGAMA (US 2003/0083069) in view of AMERGA et al (US 2004/0043798) and further in view of ABRAHAM et al (US 2003/0156580 A1).

Regarding claim 47, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of VADGAMA and AMERGA does not expressly disclose wherein said data bitrate comprises an estimated Session Circuit Switched Equivalent (CSE) bitrate. ABRAHAM discloses wherein a data bitrate comprises an estimated Session Circuit Switched Equivalent (CSE) [maximum bearer rate] bitrate (paragraph 31, 39). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of VADGAMA and AMERGA to include the teachings of ABRAHAM, since the use of a maximum bearer rate allows various class of services to be established based on priority and device capabilities.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARIEL BALAOING whose telephone number is (571)272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, V. Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VINCENT P. HARPER/  
Supervisory Patent Examiner, Art Unit 2617

/Ariel Balaoing/  
Examiner, Art Unit 2617

/A. B./  
Examiner, Art Unit 2617